DO NOT ENTER: /KC/ (05/09/2010)

AMENDMENTS TO THE CLAIMS

1- 31. (Cancelled)

32. (Currently Amended) An optical recording method for directing a recording pulse train to an optical disc medium to form marks and spaces thereon and for recording information as information about edge positions of the marks and the spaces between the marks, the recording pulse train having been created by modulating laser light into plural power levels, the method comprising:

coding to-be-recorded data into coded data consisting of a combination of the marks and the spaces;

classifying each of the marks within the coded data on the basis of its mark length and a space length of a preceding space or a succeeding space;

shifting a position of a second pulse edge counted from a starting edge of the recording pulse train for forming the marks and the spaces, depending on the result of said classifying, to adjust the recording pulse train, wherein the recording pulse train includes a first pulse and at least one pulse subsequent to the first pulse, and the second pulse edge corresponds to a falling edge of the first pulse; and

directing the recording pulse train to the optical disc medium to form the marks and the spaces thereon.

33. (Cancelled)

34. (Previously Presented) The optical recording method according to Claim 32, wherein in the course of adjusting the recording pulse train, shifting a position of a second pulse edge counted from an ending edge of the recording pulse train, depending on the result of said classifying.

35. (Previously Presented) The optical recording method according to Claim 32, wherein in the course of adjusting the recording pulse train, further shifting a position of a pulse edge at an ending edge of the recording pulse train, depending on the result of said classifying.

36. (Previously Presented) The optical recording method according to Claim 32, wherein in the course of adjusting the recording pulse train, further shifting a position of a pulse edge at the starting edge of the recording pulse train, depending on the result of said classifying.

37. (Previously Presented) The optical recording method according to Claim 32, wherein the recording pulse train for forming the marks and the spaces includes three or more pulse edges.

38. (Previously Presented) The optical recording method according to Claim 37, wherein in the course of adjusting the recording pulse train, further shifting a position of a third pulse edge counted from an ending edge of the recording pulse train, depending on the result of said classifying.

39. (Previously Presented) The optical recording method according to Claim 37, wherein in the course of adjusting the recording pulse train, further shifting a position of a third pulse edge counted from the starting edge of the recording pulse train, depending on the result of said classifying.

40. (Previously Presented) The optical recording method according to Claim 32, wherein the recording pulse train is created by modulating the laser light with at least three power values including a first power, a second power and a third power in order of intensity.

41-47. (Cancelled)

48. (Currently Amended) An optical recording apparatus for directing a recording pulse train to an optical disc medium to form marks and spaces thereon and for recording information as information about edge positions of the marks and the spaces between the marks, the recording pulse train having been created by modulating laser light into plural power levels, the apparatus comprising:

a coding unit operable to code to-be-recorded data into coded data consisting of a combination of the marks and the spaces;

a classifying unit operable to classify each of the marks within the coded data on the basis of its mark length and a space length of a preceding space or a succeeding space;

a recording waveform generator operable to create the recording pulse train for creating the marks and the spaces in which a position of a second pulse edge counted from a starting edge of the recording pulse train is shifted depending on the result of the classification performed by said classifying unit, wherein the recording pulse train includes a first pulse and at least one pulse subsequent to the first pulse, and the second pulse edge corresponds to a falling edge of the first pulse; and

a laser driving unit operable to direct the recording pulse train to the optical disc medium to form the marks and the spaces thereon.

49-51. (Cancelled)

52. (Previously Presented) The optical recording apparatus according to Claim 48, wherein said recording waveform generator shifts a position of the second pulse edge counted from an ending edge of the recording pulse train, depending on the result of the classification performed by said classifying unit.

53. (Previously Presented) The optical recording apparatus according to Claim 48, wherein said recording waveform generator further shifts a position of a pulse edge at an ending edge of the recording pulse train, depending on the result of the classification performed by said classifying unit.

54. (Previously Presented) The optical recording apparatus according to Claim 48, wherein said recording waveform generator further shifts a position of a pulse edge at the starting edge of the recording pulse train, depending on the result of the classification performed by said classifying unit.

55. (Previously Presented) The optical recording apparatus according to Claim 48, wherein the recording pulse train for forming the marks and the spaces includes three or more pulse edges.

56. (Previously Presented) The optical recording apparatus according to Claim 55, wherein said recording waveform generator further shifts a position of a third pulse edge counted from an ending edge of the recording pulse train, depending on the result of the classification performed by said classifying unit.

57. (Previously Presented) The optical recording apparatus according to Claim 55, wherein said recording waveform generator further shifts a position of a third pulse edge counted from the starting edge of the recording pulse train, depending on the result of the classification performed by said classifying unit.

58. (Previously Presented) The optical recording apparatus according to Claim 48, wherein said recording waveform generator creates the recording pulse train by modulating the laser light with at least three power values including a first power, a second power and a third power in order of intensity.

59-63. (Cancelled)

64. (Previously Presented) The optical recording method according to Claim 32, wherein in the course of classifying the marks, further classifying the mark lengths of the marks into at least three types of mark lengths including n, n+1 and n+2, in which n is a positive integer.

65. (Cancelled)

66. (Previously Presented) The optical recording apparatus according to Claim 48, wherein said classifying unit classifies the mark lengths of the marks into at least three types of mark lengths including n, n+1 and n+2, in which n is a positive integer.

67. (Currently Amended) An optical disc medium including a recording region for recording data by a method for directing a recording pulse train to the optical disc medium to

form marks and spaces thereon and for recording information as information about edge positions of the marks and the spaces between the marks, the recording pulse train having been created by modulating laser light into plural power levels, the method comprising:

coding to-be-recorded data into coded data consisting of a combination of the marks and the spaces;

classifying each of the marks within the coded data on the basis of its mark length and a space length of a preceding space or a succeeding space;

shifting a[[e]] position of a second pulse edge counted from a starting edge of the recording pulse train for forming the marks and the spaces, depending on the result of said classifying, to adjust the recording pulse train, wherein the recording pulse train includes a first pulse and at least one pulse subsequent to the first pulse, and the second pulse edge corresponds to a falling edge of the first pulse; and

directing the recording pulse train to the optical disc medium to form the marks and the spaces thereon.

68. (Previously Presented) A playback method for playing back data recorded on the optical disc medium as claimed in claim 67, the method comprising:

directing an optical beam to the optical disc medium; and

playing back the data recorded on a recording region of the optical disc medium.

69. (Previously Presented) The optical recording method according to claim 64,

wherein in said classifying each of the marks, a first classification and a second classification is determined,

wherein in the course of adjusting the recording pulse train, shifting a position of a first pulse edge and the position of the second pulse edge counted from the starting edge of the recording pulse train,

wherein the position of the first pulse edge is shifted depending on the first classification, and

wherein the position of the second pulse edge is shifted depending on the second classification.

70. (Previously Presented) The optical recording method according to claim 69,

wherein each of the marks has a time length of integral multiple k*T, in which k is a positive integer,

wherein the longer a time length of each of the marks increasing by one T, the more a number of pulses of the recording pulse train increasing by one pulse, and

wherein a shortest mark has a time length of one T.

71. (Previously Presented) The optical recording method according to claim 32, wherein a width of a first pulse of the recording pulse train is changed depending on a result of said classifying.

72. (Previously Presented) The optical recording method according to claim 32, wherein a width of a last pulse of the recording pulse train is changed depending on a result of said classifying.

73. (Previously Presented) The optical recording apparatus according to claim 66,

wherein said classifying unit determines a first classification and a second classification,

wherein said recording waveform generator shifts a position of a first pulse edge and the position of the second pulse edge counted from the starting edge of the recording pulse train,

wherein the position of the first pulse edge is shifted depending on the first classification, and

wherein the position of the second pulse edge is shifted depending on the second classification.

74. (Previously Presented) The optical recording apparatus according to claim 73,

wherein each of the marks has a time length of integral multiple k*T, in which k is a positive integer,

wherein the longer a time length of each of the marks increasing by one T, the more a number of pulses of the recording pulse train increasing by one pulse, and

wherein a shortest mark has a time length of one T.

75. (Previously Presented) The optical recording apparatus according to claim 48, wherein a width of a first pulse of the recording pulse train is changed depending on a result of the classification performed by said classifying unit.

76. (Previously Presented) The optical recording apparatus according to claim 48, wherein a width of a last pulse of the recording pulse train is changed depending on a result of the classification performed by said classifying unit.